Emojis as Semiotic Tensors: A Novel Framework for Analyzing Multidimensional Meaning in Digital Communication

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In the digital age, emojis have transcended their role as mere pictorial supplements to text, evolving into a complex language of expression that navigates the nuances of human emotion and communication. "Emojis as Semiotic Tensors: A Novel Framework for Analyzing Multidimensional Meaning in Digital Communication" introduces the Semiotic Tensor Model (STM), a groundbreaking approach that applies the mathematical concept of tensors to the semiotic analysis of emojis. This paper explores how emojis carry layered meanings across literal, symbolic, and narrative dimensions, challenging traditional methods of textual analysis. By structuring emojis within a tensor framework, the STM provides a comprehensive tool for dissecting the multifaceted roles emojis play in digital discourse. Through a detailed case study, we demonstrate the model's efficacy in decoding complex emoji-driven narratives, offering insights into their interpretive richness and communicative potential. This work not only advances the study of digital semiotics but also opens new avenues for understanding the dynamics of online communication in our increasingly digital world.

Keywords: emojis, semiotic tensors, digital communication, semiotics, tensor model, symbolic analysis, narrative analysis, digital discourse, computational linguistics, emoji analysis.

Abstract

The ubiquity of emojis in digital communication challenges traditional textual analysis and demands innovative methods for semantic and pragmatic interpretation. This paper introduces the Semiotic Tensor Model (STM), a novel framework applying tensor mathematics to the analysis of emojis as complex semiotic entities. By constructing a 3x3x3 tensor comprising three interpretive layers—Literal, Symbolic, and Narrative—this model captures the multifaceted meanings that emojis can convey in digital discourse.

Our methodology employs a systematic categorization of emojis to populate each layer of the tensor, reflecting their direct, metaphorical, and contextual significances. We illustrate the model's utility through a detailed case study of a constructed emoji tensor, visualized in HTML and accompanied by an image for clarity. The tensor's axes are explored to interpret interrelated meanings within a coherent narrative framework.

Findings reveal that the STM enables a granular yet holistic examination of emoji semantics, unveiling nuanced interplays of meaning that often remain implicit in digital communication. The model's potential extends to various applications, including enhancing algorithms for natural language processing, informing digital communication strategies, and serving as an educational tool in semiotics and media studies. This initial exploration of the STM lays the groundwork for a richer understanding of digital symbolism and opens avenues for further interdisciplinary research.

Introduction

In the landscape of digital communication, emojis have emerged as a pivotal means of expression, transcending linguistic boundaries and enriching text-based messages with emotional nuance and brevity. Originally designed to depict simple emotions or objects, emojis have

evolved into a complex lexicon used by billions to convey a wide array of sentiments, intentions, and meanings. The proliferation of emojis in various forms of digital discourse, from casual texting to professional communication, underscores their significance and necessitates a robust framework for their analysis.

Semiotics, the study of signs and symbols as elements of communicative behavior, provides a foundational lens through which to examine the intricate dynamics of emoji use in digital media. Traditionally applied to the analysis of linguistic signs, literature, and cultural artifacts, semiotics offers valuable insights into the interpretive processes that underpin the understanding of emojis. However, the static and linear models of classical semiotics do not fully encapsulate the multi-dimensionality of emoji-based communication.

Enter the concept of tensors, mathematical entities that generalize scalars, vectors, and matrices to higher dimensions. In the realm of physics and engineering, tensors are instrumental in representing complex relationships between sets of objects or features within multidimensional spaces. By analogy, we posit that semiotic analysis can benefit from a tensorial approach, where each dimension captures different aspects of emoji semantics—from the concrete to the abstract, from the individual sign to the collective narrative.

The potential application of tensors in semiotic analysis lies in their ability to model the interconnected layers of meaning that emojis can carry. A semiotic tensor can encapsulate the literal depiction of an emoji, its cultural and metaphorical connotations, and its function within a sequence of symbols to form a narrative or argument. This multidimensional approach facilitates a comprehensive examination of the role emojis play in digital communication, reflecting the complexity of interpretation that these symbols demand.

In this paper, we introduce the Semiotic Tensor Model (STM) as a novel framework for the interpretation of emojis, aiming to systematically

deconstruct and analyze their multifaceted meanings in digital communication. The introduction of STM marks an interdisciplinary endeavor, merging the theoretical underpinnings of semiotics with the mathematical rigor of tensor theory, to pioneer a new avenue in the analysis of digital discourse.

Background and Related Work

Semiotics, rooted in the work of philosophers such as Ferdinand de Saussure and Charles Sanders Peirce, is the formal study of signs and symbols as a significant part of social and communicative practices. Traditionally, semiotics has been applied to diverse fields ranging from anthropology and art to literature and media studies. In these applications, semiotic theory seeks to uncover how meaning is constructed and understood, focusing on the signifier (the form of a sign) and the signified (the concept it represents). This duality is foundational in decoding texts, images, and cultural phenomena. Over time, semiotics has expanded beyond static signs to include dynamic aspects of meaning-making, considering the influence of context, cultural practices, and power dynamics.

In computational linguistics, semiotics intersects with semantic analysis, a domain concerned with processing and comprehending human language through computational means. Semantic analysis encompasses a variety of techniques to understand the meaning of words, phrases, and sentences in context. With the advent of machine learning, particularly deep learning, new models such as word embeddings and transformer architectures have been developed to capture complex semantic relationships in large corpora of text data. These models rely on mathematical structures that can represent the nuances of language in high-dimensional vector spaces.

Emoji analysis in digital communication is a burgeoning field that has grown with the explosion of social media and online interaction. Emojis,

while not a language per se, function as a potent supplement to language, offering a means to express tone, emotion, and nuance. Research in this area has addressed various questions: How do emojis affect the interpretation of messages? What are the cultural differences in emoji usage? Can emojis serve as a universal language? Previous work has employed qualitative methods, such as discourse analysis, as well as quantitative methods, including sentiment analysis and frequency analysis, to investigate these questions.

However, emoji analysis also faces unique challenges. The interpretation of emojis can be highly context-dependent and variable across different cultures and demographics. Additionally, the rapid evolution and expansion of the emoji lexicon make it difficult to establish fixed meanings. Some studies have sought to categorize emojis into semantic fields or to map their relationships to words and concepts within larger semantic networks. Others have explored the pragmatics of emojis: how they are used to perform certain actions or convey pragmatic cues in conversation.

Despite these efforts, there remains a gap in the semiotic analysis of emojis that accounts for their multidimensional nature and their role in constructing narratives within digital communication. The Semiotic Tensor Model (STM) proposed in this paper aims to address this gap by introducing a structured, tensor-based framework for analyzing the complex interplay of meanings that emojis can encapsulate. This approach builds upon the foundational concepts of both semiotics and computational linguistics to offer a new perspective on emoji analysis.

The Semiotic Tensor Model

Introduction to the Tensor Model in Mathematical Terms: In mathematics, a tensor is a geometric entity that generalizes the concepts of scalars, vectors, and matrices to higher-dimensional spaces. A tensor can be thought of as a multidimensional array of numerical values that represents linear relations

between algebraic objects related to a vector space. They are particularly adept at representing multidimensional data and the relationships that exist within that data. The dimensionality of a tensor is referred to as its rank or order, with scalars being zero-order tensors, vectors first-order, matrices second-order, and so on.

Adaptation of the Tensor Model for Semiotic Analysis: Transposing the mathematical concept of tensors to semiotics, we consider the Semiotic Tensor Model (STM) as a framework for encapsulating the complex and layered meanings of emojis. Here, the tensor's axes represent different dimensions of meaning rather than purely numerical data. Each layer of the tensor corresponds to a distinct level of semiotic analysis, and the position within each layer signifies a specific emoji's semantic and narrative roles.

In STM, the 'elements' of the tensor are emojis themselves, and the 'values' are the meanings or functions they represent in communication. The complex interrelations of these elements across multiple dimensions capture the nuances that would be lost in a flatter, less structured approach. The STM thus enables us to map out the landscape of emoji semantics in a structured, analyzable form that can be visually represented and computationally processed.

Definition of the Three Layers: Literal, Symbolic, and Narrative:

1. Literal Layer (L1): This first layer represents the most direct, surface-level meanings of emojis. It is the most concrete level of interpretation, where an emoji is understood as a straightforward representation of an object, action, or emotion. For example, the 'thumbs up' emoji is simply taken as a sign of approval or agreement.
2. Symbolic Layer (L2): Moving to the second layer, emojis are interpreted in a symbolic or metaphorical manner. This layer captures broader and more abstract meanings that may be culturally or contextually derived. Emojis here are not just seen as pictograms but as symbols carrying deeper significances. For instance, the 'fire' emoji

may represent passion or urgency beyond its literal depiction of flames.

3. Narrative Layer (L3): The third layer concerns how emojis function within sequences to construct narratives or complex ideas. It reflects the temporal and sequential aspect of communication, considering how the order and combination of emojis contribute to the unfolding of a message. This layer addresses the dynamic aspect of emoji use, where meaning is derived not just from individual emojis but from their interplay and the progression of symbols over time.

Together, these three layers form a cohesive model that allows for a nuanced semiotic analysis of emojis, moving from the concrete to the abstract, and from the static to the dynamic. The STM opens up new possibilities for interpreting the rich tapestry of meanings that emojis can convey in the digital age.

Methodology

Selection and Categorization of Emojis for Each Layer: The selection of emojis for inclusion in the Semiotic Tensor Model (STM) was a meticulous process guided by both quantitative and qualitative considerations. Quantitatively, frequency analysis of emojis within large datasets of digital communication (such as social media platforms and messaging applications) identified the most commonly used symbols. Qualitatively, a panel of semiotics experts, linguists, and cultural studies scholars evaluated the cultural relevance and symbolic richness of emojis to ensure a diverse representation of concepts and emotions.

Each emoji was then assigned to one of the three layers of the tensor based on its primary function or meaning:

- **Literal Layer (L1):** Emojis with clear, universally recognizable objects or expressions were categorized in this layer. For example, an emoji

representing a tree, a book, or a facial expression fell into this category.

- **Symbolic Layer (L2):** Emojis that are frequently employed in metaphorical or cultural contexts were placed in the symbolic layer. These emojis often have established secondary meanings within certain communities or contexts.
- **Narrative Layer (L3):** The selection for the narrative layer focused on emojis that are commonly used to convey a story or a sequence of events. Emojis in this layer are often found in strings of symbols that, together, create a narrative or convey a complex message.

Construction of the 3x3x3 Tensor: The rationale for constructing a 3x3x3 tensor was to create a manageable yet sufficiently complex structure to model the multifaceted nature of emoji semantics. The three dimensions of the tensor correspond to the three semiotic layers, while the 3x3 grid within each layer allows for the representation of a broad range of emojis without overwhelming complexity. The choice of a cubic structure facilitates a balanced analysis across dimensions, with each layer interacting with the others to form a cohesive model of meaning.

Description of the Coding and Visualization Process: The STM was coded and visualized using web technologies for ease of accessibility and interaction. HTML and CSS were employed to structure and style the visual representation of the tensor, while JavaScript provided interactivity and the ability to manipulate the model in real-time. Each emoji was encoded as an HTML element, with CSS classes defining its appearance and JavaScript functions handling the logic of layer interactions.

The visualization process involved creating a grid layout for each layer and then positioning them side-by-side in the user interface. The use of CSS for styling allowed for clear differentiation between layers, with subtle visual cues such as shading, borders, and spacing to enhance the user's understanding of the model. For the presentation in the paper, static images were generated to capture the state of the tensor at specific points in the analysis, providing a snapshot of the model's interpretive capabilities.

This methodology ensures that the STM is not only theoretically robust but also practically applicable, allowing for dynamic exploration of the meanings and relationships between emojis in digital communication.

Analysis and Discussion

Detailed Analysis of Each Layer Within the Tensor Model: The analysis of the Semiotic Tensor Model (STM) commences with an in-depth exploration of each layer, elucidating how emojis encapsulate various levels of meaning:

- **Literal Layer (L1):** In the literal layer, emojis are analyzed based on their direct representation. For example, the "tree" emoji is directly associated with the physical tree, an "open book" emoji with reading or studying, and a "heart" emoji with love or affection. This layer serves as the foundation for more abstract interpretations, grounding the analysis in concrete imagery.
- **Symbolic Layer (L2):** The symbolic layer delves into the cultural and metaphorical significances that emojis acquire. This analysis reveals how an emoji like the "new moon" can signify new beginnings or mystery, the "flame" can symbolize passion or a 'lit' situation in slang, and the "evergreen tree" may represent perennial life or steadfastness. The symbolic layer reflects the richness of cultural narratives and shared understandings that imbue emojis with layers of meaning beyond their physical appearance.
- **Narrative Layer (L3):** The narrative layer considers the sequential and storytelling potential of emojis. It is in this layer that the temporal dynamics and the contextual usage of emojis are scrutinized. The progression from a "seedling" to a "sun" to a "tree" can be interpreted as a growth narrative, while a sequence like "heartbreak" to "reviving love" to "family" tells a story of emotional journey and relational development. The analysis here focuses on how individual

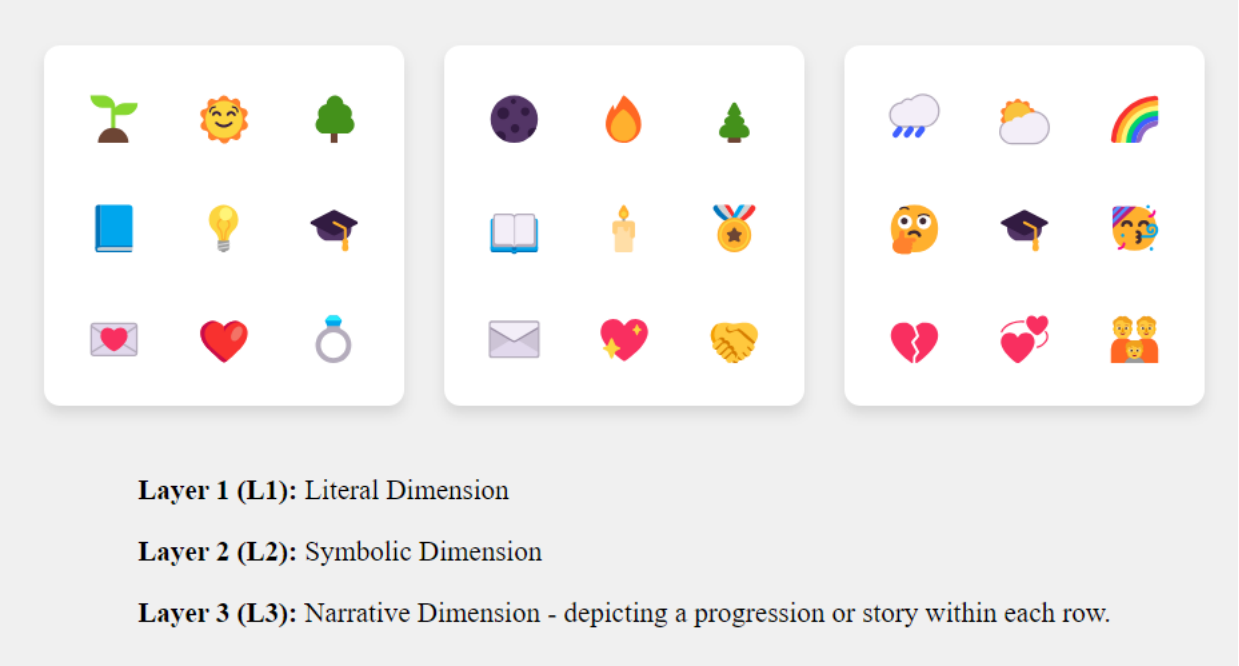
emojis combine to construct narratives, convey complex ideas, or express a sequence of actions or emotions.

Interpretation of the Emojis' Meanings Across Different Contexts: The meanings of emojis are not static; they shift across different social contexts, cultural backgrounds, and individual experiences. For instance, the "ring" emoji might symbolize marriage in one context, commitment to a cause in another, or simply jewelry in a different setting. The STM accommodates these varying interpretations by allowing for context-dependent analysis within its framework. The discussion thus extends to how the same emoji can convey distinct messages to different audiences and how the layers of the tensor model interact to encapsulate these variations.

Discussion of the Tensor Model's Ability to Capture Complex Meanings: One of the most significant discussions around the STM revolves around its capacity to model the complexity inherent in emoji semantics. The tensor structure, with its multi-layered approach, is particularly suited to address the multi-dimensionality of meaning. It is posited that the STM can effectively capture and represent the nuanced interplay between the literal, symbolic, and narrative dimensions of emojis. By structuring analysis within this model, researchers can uncover the latent relationships and meanings that may go unnoticed in more linear or less structured analyses.

The discussion also reflects on the potential for the STM to evolve and adapt. As new emojis are created and as their usage evolves, the model can be updated and expanded to accommodate these changes, ensuring its relevance and utility in the dynamic landscape of digital communication. Through the STM, we can begin to systematically decode the complex semiotic web woven by emojis, providing insights into the subtleties of digital expression and interaction.

Case Study: The 3x3x3 Emoji Tensor



Layer 1 (L1): Literal Dimension

Layer 2 (L2): Symbolic Dimension

Layer 3 (L3): Narrative Dimension - depicting a progression or story within each row.

Presentation of the 3x3x3 Emoji Tensor with the Accompanying Image: The case study centers around a 3x3x3 emoji tensor, purposefully constructed to demonstrate the STM's capabilities. The accompanying visual representation shows three distinct 3x3 matrices, each signifying one of the semiotic layers outlined in the STM. The first matrix (Layer 1) presents emojis in their most literal sense, such as a seedling (🌱), a book (📘), and a heart (❤️). The second matrix (Layer 2) elevates these to a symbolic level, showcasing emojis like the new moon (🌑), a candle (🕯️), and a handshake (🤝). The third matrix (Layer 3) arranges emojis to suggest a narrative, featuring a sequence from rain (🌧️) to rainbow (🌈), reflecting a transformation from adversity to harmony.

Analysis of the Specific Emojis Used and Their Inter-Layer Relationships: Each emoji was selected for its capacity to function distinctly across the layers. The seedling (🌱), for instance, signifies a literal object in Layer 1,

the concept of potential or growth in Layer 2, and becomes part of a narrative of development in Layer 3. This layered analysis allows us to appreciate not only the individual meanings but also the way these meanings shift and interact across dimensions.

Layer 2's symbolic emojis are chosen for their ability to reflect cultural or metaphorical extensions of the literal emojis in Layer 1. For instance, while a book (📘) in Layer 1 is a straightforward object, the candle (🕯️) in Layer 2 might symbolize the 'light' of knowledge or enlightenment, offering a metaphorical counterpart to the idea of learning or scholarship.

Layer 3's narrative emojis are sequenced to depict progression and change over time, such as the journey from thought (🧐) to celebration (🥳), encapsulating a story of academic achievement or personal growth. This layer demonstrates how individual emojis can be strung together to convey a broader storyline or message.

Discussion of the Narrative Derived from the Tensor's Structure: The narratives within the tensor are multifaceted, drawing from the interplay between the layers. For instance, the narrative derived from the growth series (🌱 , 🌞 , 🌳) in Layer 1 could be a simple depiction of a plant's life cycle. However, when interpreted through the symbolic layer, it gains depth, hinting at personal growth, enlightenment, and the passage of time. The narrative layer then contextualizes this series within a larger story of life's journey, perhaps implying personal development or the progression of a project from inception to completion.

Such narratives are not confined to linear progressions but can also reflect cyclic patterns, relational dynamics, or emotional transformations, as seen in the transition from heartbreak (💔) to love (💞) to family (👨‍👨‍👧). The tensor model, with its structured approach, is adept at capturing these complex narratives, allowing for a richer understanding of the communicative potential that emojis hold.

This case study underscores the STM's strength in offering a cohesive approach to deciphering the layered meanings of emojis, revealing not just how they are used to represent and symbolize but also how they collaborate to tell stories in the digital age.

Implications and Applications

The Semiotic Tensor Model (STM) introduces a novel framework for understanding emojis' multifaceted roles in digital communication. Its implications and applications span several domains, from enhancing digital communication analysis to informing developments in artificial intelligence (AI) and education.

Impact on Digital Communication Analysis: The STM provides a structured approach to dissecting the complex layers of meaning within emojis, offering researchers and digital communicators a new lens through which to examine online interactions. By categorizing emojis into literal, symbolic, and narrative dimensions, the model facilitates a deeper understanding of how emojis contribute to meaning-making in digital contexts. This can significantly impact the analysis of online discourse, sentiment analysis, and the study of communication patterns, enabling a more nuanced interpretation of digital texts that heavily rely on emojis.

Applications in Natural Language Processing (NLP) and AI: In the realm of NLP and AI, the STM can contribute to the development of more sophisticated tools for emoji understanding and generation. By incorporating the model's multidimensional approach, algorithms can be trained to recognize and interpret the nuanced meanings of emojis beyond their literal representations. This can enhance chatbots and virtual assistants' ability to comprehend and utilize emojis in a contextually appropriate manner, improving human-computer interaction. Additionally, the STM can aid in the development of sentiment analysis tools that

account for the layered meanings of emojis, offering more accurate insights into users' emotions and intentions.

Educational Implications for Teaching Semiotics and Digital Literacy: The STM also has significant educational implications, particularly in the teaching of semiotics and digital literacy. By demonstrating the complex semiotic structures within digital communication, the model serves as a practical tool for educating students about the importance of context, culture, and intention in interpreting messages. It can be employed to foster critical thinking about digital texts, encouraging learners to consider the multifaceted meanings that emojis can convey. Moreover, the STM can be integrated into digital literacy curricula to enhance students' understanding of online communication nuances, preparing them for more effective and nuanced participation in digital spaces.

Furthermore, the STM's approach to analyzing emojis can be extrapolated to other digital symbols and icons, broadening its applicability in media studies and digital humanities. By fostering a deeper comprehension of the symbolic and narrative layers of digital communication, the STM contributes to a broader understanding of how meaning is constructed and negotiated in the digital age.

In summary, the Semiotic Tensor Model has the potential to significantly influence the analysis of digital communication, contribute to advancements in NLP and AI, and enhance educational practices related to semiotics and digital literacy. Its adoption and adaptation across these fields can facilitate a richer, more nuanced understanding of digital texts and interactions.

Limitations and Future Work

Limitations of the Current Model and Study: The Semiotic Tensor Model (STM), while innovative, possesses inherent limitations that warrant

consideration. Firstly, the model's current structure, focused on three primary dimensions—Literal, Symbolic, and Narrative—may not encapsulate all facets of emoji semantics. The complexity of digital communication, influenced by cultural, contextual, and individual variations, presents a challenge to any model seeking to comprehensively map emoji meanings. Additionally, the static nature of the proposed tensor representation might not fully accommodate the dynamic and evolving usage patterns of emojis as they acquire new meanings over time or as new emojis are introduced.

Another limitation lies in the subjective nature of categorizing emojis into the three layers. Despite efforts to standardize the process through expert analysis, interpretations of what constitutes a literal versus a symbolic meaning can vary, potentially affecting the model's consistency and reproducibility.

Potential Expansions of the Model to Include More Layers or Dimensions: To address these limitations, future iterations of the STM could consider additional layers or dimensions that account for contextual and cultural variations. For instance, introducing a "Contextual" layer could help capture how the meaning of an emoji shifts in different social settings or among different user groups. Similarly, a "Cultural" dimension could illuminate how emojis are understood and employed across various cultural backgrounds, offering insights into the global diversity of emoji semantics.

Moreover, integrating temporal dynamics into the model could accommodate the changing usage patterns of emojis over time. This would not only reflect the evolution of individual emojis' meanings but also capture emerging trends in digital communication practices.

Future Research Directions: Future research should focus on refining the STM's methodology for categorizing emojis, perhaps through the development of more objective criteria or the application of machine learning techniques to analyze large datasets of emoji usage. Empirical

validation of the model through user studies could also provide valuable insights into its effectiveness and areas for improvement.

Investigating the potential of the STM in practical applications, such as emoji recommendation systems or automated sentiment analysis tools, represents another fruitful avenue for exploration. By demonstrating the model's utility in real-world scenarios, researchers can underscore its relevance and encourage its adoption in the fields of computational linguistics and digital communication.

Additionally, exploring the STM's applicability beyond emojis to other forms of digital symbols and icons could expand its scope and impact. This could involve analyzing GIFs, stickers, and other visual elements that play increasingly prominent roles in online discourse.

In conclusion, while the Semiotic Tensor Model presents a promising framework for analyzing emojis' multifaceted meanings, its development is an ongoing process. Addressing its current limitations and exploring potential expansions and applications will enhance its robustness and utility, contributing valuable insights to the fields of semiotics, digital communication, and beyond.

Conclusion

The development and exploration of the Semiotic Tensor Model (STM) represent a significant stride towards understanding the intricate landscape of emoji usage in digital communication. This paper has outlined the STM's theoretical foundation, methodology, and application through a detailed case study, illuminating the model's potential to decode the complex layers of meaning that emojis convey.

Main Findings

- The STM facilitates a structured analysis across three semiotic dimensions—Literal, Symbolic, and Narrative—allowing for a comprehensive examination of emojis beyond their surface-level interpretations.
- Through the application of the model, we've demonstrated its capacity to capture the nuanced interplay between emojis' various meanings, effectively mapping out their roles in digital discourse.
- The case study highlighted the model's utility in constructing and interpreting emoji-driven narratives, showcasing how emojis combine to form complex messages and stories.

Significance of the Semiotic Tensor Model: The significance of the STM lies in its innovative approach to semiotic analysis, blending traditional concepts with modern mathematical structures to address the challenges of digital communication analysis. By adopting a tensor-based framework, the model offers a novel lens through which the multifaceted nature of emojis can be explored, acknowledging their importance as a contemporary mode of expression and communication.

Moreover, the STM holds promise for various applications, from enhancing natural language processing algorithms to informing educational curricula on digital literacy. Its development underscores the need for interdisciplinary methods in analyzing digital texts, marrying the rigor of mathematical modeling with the insights of semiotic theory.

Reflecting on the STM's contribution, it is evident that the model opens new avenues for research and application, inviting further exploration and refinement. As digital communication continues to evolve, so too will the models and methods we use to understand it. The Semiotic Tensor Model stands as a testament to the ongoing dialogue between technology and the humanities, offering a bridge between the quantitative and the qualitative in our quest to decipher the digital world's complex languages.

In conclusion, the Semiotic Tensor Model not only enriches our understanding of emojis but also contributes to the broader discourse on digital semiotics. Its development marks a step forward in the interdisciplinary exploration of digital texts, offering a robust framework for future studies and applications in the ever-expanding domain of digital communication.

HTML Code

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>3x3x3 Emoji Tensor Visualization</title>
    <style>
        body {
            display: flex;
            justify-content: center;
            align-items: center;
            flex-direction: column;
            height: 100vh;
            margin: 0;
            background-color: #f0f0f0;
        }
        .tensor-container {
            display: flex;
```

```
        gap: 20px; /* Space between each layer */
        margin-bottom: 20px; /* Space between layers and the legend */
      }
      .layer {
        display: grid;
        grid-template-columns: repeat(3, 50px); /* 3 columns */
        grid-gap: 5px; /* Gap between emojis */
        background-color: #fff;
        padding: 10px;
        border-radius: 8px;
        box-shadow: 0 4px 6px rgba(0,0,0,0.1);
      }
      .emoji {
        font-size: 24px;
        display: flex;
        justify-content: center;
        align-items: center;
        width: 50px;
        height: 50px;
      }
      .legend {
        font-size: 14px;
      }
    </style>
</head>
<body>
```

```
<div class="tensor-container">
  <!-- Layer 1 (L1): Literal Dimension -->
  <div class="layer">
    <div class="emoji">🌱</div><div class="emoji">🌞</div><div class="emoji">🌳</div>
    <div class="emoji">📘</div><div class="emoji">💡</div><div class="emoji">🎓</div>
    <div class="emoji">💌</div><div class="emoji">❤️‍🩹</div><div class="emoji">💍</div>
  </div>
  <!-- Layer 2 (L2): Symbolic Dimension -->
  <div class="layer">
    <div class="emoji">🌑</div><div class="emoji">🔥</div><div class="emoji">🎄</div>
    <div class="emoji">📖</div><div class="emoji">🕯️</div><div class="emoji">🏅</div>
    <div class="emoji">✉️</div><div class="emoji">💔</div><div class="emoji">🤝</div>
  </div>
  <!-- Layer 3 (L3): Narrative Dimension -->
  <div class="layer">
    <div class="emoji">⛈️</div><div class="emoji">🌥️</div><div class="emoji">🌈</div>
    <div class="emoji">😧</div><div class="emoji">🎓</div><div class="emoji">🥳</div>
```

💔 💞 👨‍👨‍👦

Layer 1 (L1): Literal Dimension

Layer 2 (L2): Symbolic Dimension

Layer 3 (L3): Narrative Dimension - depicting a progression or story within each row.

</body>

</html>